Attachment A
Installation Instructions for AWIPS Release OB4
Lessons Learned/Addendum

Date: **12/09/04**

Assumption: It is assume that you are using the version of the installation installations dated **9/16/2004**. This is also the version that is found on the installation web page:

http://www.ops1.nws.noaa.gov/awips_softwre.htm

If you do not have this version, obtain it now.

Purpose: Replace the pages from the OB4 installation instructions document on the web page above (**dated 09/16/04**), with the updates included in this lessons learned/addendum (**dated 12/09/04**).

Chapter	**Page # New Version**	**Comments**	**Directions**
Part 1	Page 1-4 and 1-5	Step 15b was updated because of a typo and to add more error information.	Replace existing pages with the update (1-4 and 1-5) with the updated pages.
Part 13	Pages 13-1 through 13-2	New step 2 was inserted.	Replace existing pages (13-1 through 13-2), with the updated pages.
Part 15	Pages 15-2 through 15-9	Step 5d was updated. Step 9b was replaced. Step 9d was corrected. New steps 10b, 13d, 14, 15 16, 17, and18 added.	Replace existing pages (15-2 through 15-6), with the updated pages.

Part 1 Install Day Procedures

Change pages and modified steps for part 1:

Pages 1-4 and 1-5 was updated. Replace this with page 1-4 and 1-5.

ii. **rlogin px2**
iii. **mkdir -p /local/install**
iv. **script -a -f /local/install/prepare_OB4.out**
v. **mount /mnt/cdrom**
vi. **cd /mnt/cdrom**
vii. **./prepare_OB4** (takes about 10 to 15 minutes)

If the script reports the following type of error near the beginning of the script:
`ssh: connect to host lx5 port 22: Connection refused`

The script will exit abnormally and require user action. If this happens, log in to the specified node and execute the following as `root`:

1. **/etc/init.d/sshd start**
2. **exit** (returns to PX2)

Then, restart the `prepare_OB4 script`.

viii. **exit** (exits the script)

Review the script output file, `/local/install/prepare_OB4.out`, to ensure that no unexpected errors (such as `busy`, `fail`, `error`, etc.) were encountered.

15. Install SSH keys for NCF access. Error information and sample output are shown in the *Script Log Output* document, sections 1.5 and 1.6.

From **PX2** as user `root`, type the following commands:

a. **script -a -f /local/install/setupNCFSSHkeys.out**
b. **/home/awipsadm/ssh/setupNCFSSHkeys.sh** (takes < 1 minute)

The following error messages can be ignored for non-awips nodes, such as `ps8`, `wes` and `rpp`:

```
err#21  : portid=0     : specified port id unavail/busy.
ERROR - rsh failed on ps8-<siteid>-<siteid>
Please contact the NCF!!

wes-<siteid>: Connection refused
ERROR - rsh failed on wes-<siteid>-<siteid>
Please contact the NCF!!
```

c. **exit** (exits script)

Review the script output file, `/local/install/setupNCFSSHkeys.out`, to ensure that no unexpected errors (such as `busy`, `fail`, `error`, etc.) were encountered.

Exit out of PX2 and return to the Linux Workstation for the next step. Type:

`exit` (returns to Linux Workstation)

16. Check for PX BIOS updates and install if needed. The PX BIOS was updated in OB3.2. A script is run on DS1 to verify if the update was correctly installed. Error information and sample output are shown in the *Script Log Output* document, sections 1.7 and 1.8.

    Type the following commands:

    a. **`rlogin ds1`**

    b. **`script -a /home/ncfuser/installPXupdates_OB4.out`**

    c. **`cd /home/awipsadm/install`**

    d. **`./px_bios_bcm_chk.sh px1`** (takes about 1 minute)

    If the script indicates the BIOS is not installed, type the following to install the BIOS and reboot the PX:

    ii. **`./px_bios_bcm_updt.sh px1`** (takes about 15 minutes)

    iii. **`./px_bios_bcm_chk.sh px1`** (takes about 1 minute)

    If the script still indicates that the BIOS is not installed, call the NCF.

    e. **`./px_bios_bcm_chk.sh px2`** (takes about 1 minute)

    If the script indicates the BIOS is not installed, type the following to install the BIOS and reboot the PX:

    ii. **`./px_bios_bcm_updt.sh px2`** (takes about 15 minutes)

    iii. **`./px_bios_bcm_chk.sh px2`** (takes about 1 minute)

    If the script still indicates that the BIOS is not installed, call the NCF.

    iv. **`rlogin px2`**

    v. **`mount /mnt/cdrom`** (remounts the CD)

    vi. **`exit`** (returns to DS1)

    f. **Step f is only for site AFC**. Repeat steps d and e, substituting PX3 and PX4 for PX1 and PX2.

    g. **`exit`** (exits from script)

    h. **`exit`** (returns to Linux workstation)

17. Return to PX2 and disable the auto logout. Type the following:

    a. **`rlogin px2`**

    b. **`export TMOUT=0`**

If no errors occurred, proceed to Part 2. Otherwise, contact the NCF

Part 13 Install OB4 FXA/System Software

Change pages and modified steps for part 13:

Pages 13-1 through 13-2 were updated. Replace these with pages 13-1 through 13-2.

Part 13 Install OB4 FXA/System Software

Note: This part is required for both WFO systems and RFC systems.

1. Automatically Saved and Restored Information. No files are saved off.

2. Since the dsswap packages are stopped in Part 13, verify the active window in which the script is run does not have a connection to DS1. Repeat step a until the window has returned to a Linux Workstation.

   a. **`exit`** (Returns to the Linux Workstation)
   b. **`rlogin px2`** (Returns to PX2 as `root`)

3. Run the FXA install script. Error information and sample output are shown in the *Script Log Output* document, sections 13.1 and 13.2.

   From **PX2** as user `root`, type the following commands:

   a. `script -a -f /local/install/installOB4.out`

   b. **`cd /mnt/cdrom`**

   c. **`./install_OB4`** (Takes from 60 to 100 minutes)

      The following output can remain on the screen for some time.

      ```
      Running /awips/laps/etc/localize_domain.pl
      ```

   d. **`exit`** (Exits the script)

4. Review the script output file, `/local/install/installOB4.out`, to ensure that no unexpected errors (such as `busy`, `fail`, `error`, etc.) were encountered.

5. Restart LDAD applications, as applicable. Begin by logging on to the LS1 as `root`.

   a. **`rlogin ls1`**

   b. Start all local running software, including samba, ldm, and the dissemination server. The following are examples on how to start each application. However, local sites may have slight modifications.

      i. Samba.

         1. Edit the `/etc/inetd.conf file`. Clear the comment character by removing the # from the 3 lines that contain `smbd`, `nmbd`, and `swat`. Save the file.

            Type the following command:

         2. **`inetd -c`**

ii. LDM.
There are a couple of different variations to start the local data manager. Choose the appropriate commands.

Type the following:

1. **su - ldad** (some sites use `ldm` instead of `ldad`)
2. **./ldmadmin start**
3. **exit**

Central Region uses:

```
su - ldm
cd /usr/local/ldm/runtime/bin
./ldmadmin.in start
exit
```

iii. Dissemination Server.
Type the following commands:

1. **su - ldad**
2. **/ldad/bin/DServer start**
3. **exit**

c. Restore any crons that may restart LDAD applications.

d. Exit out of LS1.Type the following:

exit (Exits out of LS1 and returns to PX2.)

6. Restore interfaces to LDAD.

a. Turn on the dial-in phone lines to allow ASOS to access LDAD.

b. Restore any other interfaces to LDAD.

If no errors occurred, proceed to Part 14. Otherwise, contact the NCF.

Part 15 OB4 After Install Procedures

Change pages and modified steps for part 15:

Pages 15-2 through 15-6 were updated. Replace these with pages 15-2 through 15-9.

5. System checkout.
   The following items should be checked to verify that the system is running properly.

   a. Netscape System Monitoring Window.
      Start the Netscape browser and verify that servers and processes are functioning normally.

   b. Netscape bookmarks.
      The bookmarks for `awipsusr` are stored in each users home directory:

      `/home/<username>/.netscape/bookmarks.html.old`

      Merge any previous bookmarks as needed into `bookmarks.html`.

   c. Radar products (applicable to sites that host radars).
      Verify that radar products are being stored locally. In addition, verify that radar products are being sent out over the WAN by checking to the following web site:

      http://weather.noaa.gov/monitor/radar

   d. Reboot Xyplex server.
      The xyplex menu was updated in Part 1. Reboot the xyplex using the following commands to see the updated menu changes.

      From the **Xyplex** terminal as user `root`, type the following commands:

      i. **`set priv system`**

      ii. **`init delay 0`** (The 0 is the numeric zero)

   e. Remove obsolete WWA directories (WFO systems only)

      On **DS1** as user `root`, type the following commands:

      i. **`rm -rf /data/local/TEMP_WWA_OB4_INSTALLATION_DIR`**

      ii. **`rm -rf /data/local/BACKUP*DIR`**

6. Additional RFC system checkout (RFC systems only).
   Check the following RFC specific items.

   a. As user `oper`, start the RFC specific `oper` cron.

   b. Check to see if the shefdecoder is running.

   c. Check to see if DPA decoder is running.

   d. Verify that APPS_DEFAULTS is pointing to `/awips/hydroapps/.Apps_defaults.`

   e. Verify that APPS_DEFAULT_USER and APPS_DEFAULT_SITE environment variables are set.

   f. Verify that the following directories are in the user's path.
      `/awips/hydroapps/rfc/nwsrfs/ofs/scripts`
      `/awips/hydroapps/public/bin`
      `/usr/X11R6/bin`.

g. Verify that the `fun` function is set up on login.

7. Setup automatic launch of Text Workstations (optional).
Prior to OB4, when the `textdemo` user logged into the XT, the text workstation application automatically started. This feature is disabled in OB4. However, if the site is concerned that the individual users could forget to start the application, do the following steps to restore the automatic startup.

From a **Linux Workstation** as `fxa`, type the following:

a. **`umask 000`**

b. **`cd /awips/fxa/bin`**

c. **`ln -s ./startTextWSonXT ./runTextWSonXT`**

8. Merge customized site changes into crons (optional).
Any site specific changes to the crons can be merged into the active crons as needed. However, check carefully before adding any items to the cron since some applications (such as HWR) have moved to the PXs.

9. Hydro information for WFO systems and RFC systems.

a. Check the RiverPro application (applicable to sites that use RiverPro).
If the RiverPro application is not working, review Section E in the OB3.3 release instructions, and complete steps as necessary.

b. Instructions for the Site Specific Hydrologic Predictor (SSHP) (applicable to sites that use SSHP)

The following instructions provide steps for updating a new Informix table (`sshpconfig`), associated with the new SSHP application delivered in AWIPS OB4. The OB4 version of SSHP introduces the option of using the Sacramento Soil Moisture Accounting model. The steps listed below set the initial model preference for all site specific points to the Kansas City API model which was used in the previous version of the SSHP.

i. From **DS1** as `root`, switch to user `oper`, using the `su` command:

`su – oper`

ii. Go to the `/awips/hydroapps/ihfsdb_conversion` directory:

`cd /awips/hydroapps/ihfsdb_conversion`

iii. Connect to the NOAA1 ftp server by entering the command:

`ftp 165.92.25.15`

Once connected to the NOAA1 ftp server, login as user `ftp`, with your email address as the password, (e.g. john.doe@noaa.gov).

iv. Get the site specific update file from the NOAA1 ftp server by entering the following sequence of commands:

1. **cd /pub/ohd/site_specific**
2. **get update_SSHP_config.ksh**
3. **bye**

v. Before executing the script adjust the permissions on the downloaded file:

chmod 777 update_SSHP_config.ksh

vi. Update the SSHPconfig table by executing the script by entering the following command:

update_SSHP_config.ksh

As the script runs, there should be messages that echo the SQL commands being executed.

vii. After the script ends, a prompt returns. At this point, check the log file and see if any error output was written. To do this type the following:

more update_SSHP_config.log

If the prompt is returned with no output written to the display, then no errors were encountered. If text is returned to the display, contact the WHFS Support team so that any errors can be investigated.

c. Adjust file retention criteria for the Multi-sensor Precipitation Estimator (MPE) (optional)
If the site is already running MPE operations and not having disk space problems, then it is not necessary to adjust file retention.

To reduce retention, edit
`/awips/hydroapps/precip_proc/bin/purge_mpe_files`.

Find the line that contains `mtime ##` and reduce the ## variable. A value of 1 actually implies retention of 2 days, a value of 2 implies retention of 3 days, etc.

d. Activate new grids with MPE operations (optional).
New functionality includes two new precipitation grids as part of MPE operations:
local bias corrected multi-sensor mosaic field and
local bias corrected satellite field.

The default setting is set to OFF, but can be activated by setting the following `/awips/hydroapps/.Apps_defaults_site` tokens to ON:

`mpe_mlmosaic_calc` (for multi-sensor), and
`mpe_lsatpre_calc` (for satellite).

Additional information is provided in the HydroView/MPE documentation.

10. WWA/WarnGen Template and VTEC OT&E Information (WFO systems only).

a. The only difference between OB3.3 and OB4 is that all WWA templates, including a corrected `WWA_mws.preWWA` template, are delivered into `/data/fxa/nationalData`.

The only difference between OB3.3 and OB4 in WarnGen templates is a corrected `wwa_mws_nosmw.preWWA`.

Continue to customize WWA and WarnGen templates, as needed, according to the instructions in release OB3.3.

b. VTEC OT&E sites only, must turn VTEC back on for WarnGen products SVR, TOR, SVS, SMW, MWS. The FFW and FFS should remain off.

The procedure below should only be done by the VTEC OT&E sites: CHS, PHI, JAX, TAE, EWX, CRP, DTX, DMX, RIW, CYS, VEF, SGX, FGZ, PSR, and BOI. The procedure is needed because OB4 turns off VTEC for all sites, including the OT&E sites.

OB4 by default disabled WarnGen VTEC and provided a new version of `/data/fxa/nationalData/warnGenVTEC.mode` containing "`OFF`". To enable WarnGen VTEC "X" mode (as was done at the start of the VTEC OT&E), do the following as `fxa`:

```
cd /data/fxa/nationalData
echo EXP > warnGenVTEC.mode
```

OB4 also provided a new WarnGen QC configuration file, `/data/fxa/nationalData/textQC.config`. The default settings should be OK except that the hydrologic QC needs to be disabled (as was done at the end of the VTEC OT&E). To do that, edit the `textQC.config` file and add "#" at the beginning of the FFS and FFS lines. The file should look like this:

```
TOR  {localWarningInfoTest TOR}  EXE   Y   N   Y   Y   N   N   {Tornado Warning}
SVR  {localWarningInfoTest SVR}  EXE   Y   N   Y   Y   N   N   {Severe Thunderstorm
                                                                  Warning}
SVS  NONE                        INT   Y   Y   Y   Y   N   N   {Severe Weather
                                                                 Statement}
#FFW  {localWarningInfoTest FFW}  EXE   Y   N   Y   Y   N   N   {Flash Flood Warning}
#FFS  NONE                        INT   Y   Y   Y   Y   N   N   {Flash Flood Statement}
SMW  {localWarningInfoTest SMW}  EXE   Y   N   Y   Y   N   N   {Special Marine Warning}
MWS  NONE                        INT   Y   Y   Y   Y   N   N   {Marine Weather Statement}
SLS  NONE                        INT   Y   N   Y   Y   N   N   {Watch Box Areal Outline}
```

No localization is needed. The next time WarnGen is launched (D2D does not need to be restarted), the changes will take effect and WarnGen will produce VTEC.

Also be sure that the VTEC lines are still commented out in the WarnGen hydrologic templates in /data/fxa/customFiles. For instructions on this, see "Disabling WarnGen Hydrologic VTEC" at the following web page:

http://www.nws.noaa.gov/om/vtec/

11. Localization for Backup sites.
A backup localization needs to be run before the WWA and WarnGen applications can be

used in backup mode.

12. Maintenance Release.
This is a reminder that maintenance releases to OB4 should be installed on the day of the upgrade, if appropriate.

The web page with AWIPS Software and Maintenance Release information is located at the following link:

http://www.ops1.nws.noaa.gov/awips_softwre.htm

13. Miscellaneous Post Install Information.
    a. Local entries in the virtual field table could produce unexpected results when using the ETA40 model due to a bug that mixes ETA20 and ETA40 data. Detailed workaround information is available in the *OB4 Release Notes*.
    b. OB4 delivers a new version of Tcl/Tk. One beta site noticed that code with square brackets, e.g., `catch [action]`, was causing errors to be displayed. A change to curly braces, e.g., `catch {action}`, seemed to take care of the problem.
    c. Information on how D2D User IDs and new login accounts interact.
        i. The D2D application has a set of User IDs defined in the `/awips/fxa/data/fxa-users` file on each workstation. The format of `fxa-users` is account name on the left and user real name on the right.

```
# Acct          Name
#-----          --------------
martin          Martin
moss            Moss
```

        ii. User IDs are activated on the D2D by choosing **File:Select User ID…** from the main D2D application and choosing the Name from the Select User ID GUI.
        iii. Acct names in `fxa-users` point to a procedure directory located at `/data/fxa/procs`. For example, User ID `Martin` has a directory named `/data/fxa/procs/martin`.
        iv. The `setupAwipsUser.sh` script adds additional User IDs to the `fxa-users` file for any newly created individual user names that were different that the User IDs previously defined before OB4. For example, if the `setupAwipsUser.sh` script creates `wmartin` as the new login name and Wayne Martin as the real name, then the `fxa-users` has a new entry listed below:

```
# Acct          Name
#-----          --------------
martin          Martin
moss            Moss
wmartin         Wayne Martin
```

v. Once the new entry is selected from the Select User ID GUI, a new procedure directory in `/data/fxa/procs` is created. So, when Wayne Martin is selected in the GUI, the `/data/fxa/procs/wmartin` directory is created.

Therefore, it is possible to have two procedure directories for one user. One directory has the previously defined procedures and the other directory is the newly created (empty) one. Review the example for a suggestion on how to clean up the directories and link the old procedures to the new username.

Given the following example:

```
lx1-nmtw:ncfuser:\3$ cd /data/fxa/procs
lx1-nmtw:ncfuser:\4$ ls -l
total 6784
...
drwxrwxr-x   23 fxa      fxalpha      1024 Nov 20  2001 martin
drwxrwxr-x    3 fxa      fxalpha        96 Sep 10 12:30 wmartin
...
drwxrwxr-x    4 fxa      fxalpha        96 Sep 10 12:35 mmoss
drwxrwxr-x   35 fxa      fxalpha      1024 Feb 26  2004 moss
...
```

The pre-existing procedures are in the `martin` and `moss` directories.

As user `root` on **DS1**, move those directories into `wmartin` and `mmoss` as follows:

`cd /data/fxa/procs`	
`rm -rf wmartin`	(removes empty `wmartin` directory)
`mv martin wmartin`	(copies old directory to new username)
`rm -rf mmoss`	(removes empty `mmoss` directory)
`mv moss mmoss`	(copies old directory to new username)

To complete the cleanup, edit the `/awips/fxa/data/fxa-users` file on LX1 and remove the lines with the old `martin` and `moss` IDs. Copy the corrected `fxa-users` file to all other workstations.

vi. Ownership and permissions in `/data/fxa/procs` are set the first time a User ID is opened. As a consequence, if `wmartin` opens up `mmoss`'s User ID before `mmoss` opens it, then the ownership and permissions are set to `wmartin`. This scenario prevents `mmoss` from saving any procedures in `mmoss`'s directory. There can also be ownership problems if a user saves a procedure in another user's directory. Review the example for a suggestion on how to fix these problems.

Given the following example:

```
lx1-nmtw:ncfuser:\5$ cd /data/fxa/procs
lx1-nmtw:ncfuser:\6$ ls -l
total 6784
...
drwxr-xr-x   23 wmartin   fxalpha     1024 Sep 10 12:30 wmartin
...
drwxr-xr-x   35 wmartin   fxalpha     1024 Sep 10 12:35 mmoss
```

...
The mmoss directory is owned by wmartin. Correct ownership and permissions problems by typing the following:

```
chown -R mmoss:fxalpha mmoss
chmod -R 775 *
```

Now, mmoss is able to save procedures under the mmoss username.

d. Information on saving or sending products from the text window on graphic screens.

Ownership and permissions for saving or sending products from the text window on the left, middle or right displays of the graphics workstation are set in /data/fxa/textWSwork/localhost:0.?/saved. This directory is not created until the first time the text window is used to save or send a product. The permissions are initially set at 755, which prevents any other user from saving or sending on that workstation. To allow multiple users to save and send products from a text window on a graphics workstation, change permissions to 775 by completing the step below.

As user root on **DS1**, type the following:

```
chmod 775 /data/fxa/textWSwork/localhost:0.?/saved
```

14. AWIPS to CRS product transfer problem (WFO systems only).
When CRS is using the backup processor 5MP as the master processor, there is a significant delay when products are sent to CRS. To fix this, run the following on **DS1** as root:

a. **rlogin ds1-<siteID> -l root**

b. **cd /data/local/ATAN_654**

c. **./install_ATAN_654**

15. Fix permissions on radar tool.
The first time a user selects the Radar Display Control tool after the OB4 install, permissions on the related files are set at 644. This permission prevents any other user from using this tool. Perform the following steps on **DS1** as user root:

a. **cd /data/local/ROB4.0_ATAN**
b. **./fix_perms**

16. LSR format change. (WFO systems only)
A file was delivered in OB4 that directed the LSR application to use a new format on December 7, 2004. However, a decision was made to delay the format change until October 4, 2005. Run the following script to update the file with the new activation date. From **DS1** as user root:

a. **/home/ncfuser/lsr_date.ksh**

17. Restore the WarnGen QC segmentation configuration file. (Valid for WFO systems that install on December 8, 2004, or later.)
During the install of OB4, the QC file reverted to the non-segmented version for short fused follow-up products. Copy the files below to restore the correct file.

    From **DS1** as user `fxa`, perform the following steps:

    a. cd /data/fxa/nationalData

    b. cp -p seg_svs_control.inc.SEGSVS seg_svs_control.inc

    c. cp -p textQC.config.SEGSVS textQC.config

18. AVNFPS workaround for a TAF/TWB Editing Problem (WFO systems only)
Sites are not able to send an edited TAF/TWB after OB4. The problem occurs when answering the query "Are you sure?" after editing and attempting to send a TAF or TWB. A fix will be made in a future AvnFPS build. In the meantime, a workaround can be used to remove the query.

    To install the fix, do the following on **DS1** as `root`:

    a. **`cd /data/local/avnfps`**

    b. **`tar xvf AvnFPSP1.tar`**

    c. **`./pushAvnFPSP1.sh`**

    The `pushAvnFPSP1.sh` script takes a few seconds to run and replaces the applications `TafEditDialog.py` and `TwbEditDialog.py` in `/awips/adapt/avnpfps/2.0/py`. The original Python scripts are saved with a prefix of `orig_`.

19. LDAD Post Install Procedures (optional).
If the site had customized changes to the files that are listed in Appendix A, section 1, merge the changes into the appropriate files. When complete, stop and start LDAD.

    From **DS1** as user `ldad`, type the following commands:

    a. **`cd /awips/fxa/ldad/bin`**

    b. **`stopLDAD.sh`**

    c. **`startLDAD.csh`**

20. LDAD Backup.
LDAD executables and/or configuration files have been changed as a result of this installation. Therefore, once the installation has been completed along with the after-installation procedures, and the system is working correctly, generate a new LDAD backup. This should be done a week or so after the upgrade using System Administration Note 12 entitled *LDAD Backup and Restore Procedure*. This document can be found on the following web page:
http://www.ops1.nws.noaa.gov/AWIPSSystemAdminNotes.htm